

PROCESS FOR THE MANUFACTURE OF COMPOSITE STRUCTURE

ABSTRACT

(025) The invention is a process for making a composite structure having a honeycomb core and face sheets using vacuum bagging techniques without the use of an autoclave. In detail, the process includes the following steps: 1) forming a preform sandwich assembly having previously de-bulked cover sheets impregnated with a fiber-reinforced resin having a first curing temperature, a honeycomb core and sheets of adhesive between the cover sheets and core, the first layer of adhesive having a second curing temperature less than the first curing temperature; 2) vacuum bagging the preform and drawing a vacuum; 3) initially heating the vacuum bagged preform at a heating rate of between 0.5 degree and 2 degrees per minute until the gel temperature of said adhesive is reached; 4) holding the temperature at the gel temperature until the layer of adhesive has cured; 5) raising the temperature to the first curing temperature of the fiber-reinforced resin; and 6) maintaining the temperature at the first curing temperature until the fiber-reinforced resin has cured.